APRIL/MAY 2024

CEL21/FEL21 — ELECTROMAGNETISM AND AC CIRCUITS

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is self induction?

2. Write the features of induction coil.

3. Define RMS.

4. Write the power factor in an AC circuit containing resistance.

5. What is tesla coil?

6. Define time constant.

7. What do you mean by AC dynamo?

8. What are called star and delta connections?

9. State Gauss's Law.

10. Give the Maxwell's Equations in integral form.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Elucidate the mutual induction of a solenoid inductor

Or

(b) Enumerate the eddy current and its uses.

12. (a) Write a note on Mean, RMS and peak values of alternating currents

Or

(b) Obtain the power factor in the case of an AC circuit containing inductance.

13. (a) Outline the losses of transformer.

Or

(b) Describe the decay of charge in a circuit having C and R.

14. (a) Explain the distribution of three phase AC.

Or

(b) Discuss the working principle of DC motor.

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15. (a) Describe the Gauss's law for electrostatics and magnetostatics

Or

(b) Elucidate the Amperes Force law.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the determination of mutual induction.

17. Derive the power factor in the case of an AC circuit containing LCR.

18. Describe the growth of current in LCR circuit.

19. Explain the series and shunt dynamos.

20. Obtain the Maxwell's Equations.

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